



Section C:1

Nuclear Material Stabilization

PROJECT MANAGERS

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SUMMARY

The Nuclear Material Stabilization (NMS) mission consists of the Plutonium Finishing Plant (PFP), WBS 1.4.5 (PBS TP05).

NOTE: Unless otherwise noted, the Safety, Conduct of Operations, Milestone Achievement, and Cost/Schedule data contained herein is as of October 31, 2000. All other information is as of November 20, 2000 unless otherwise stated.

Through November 20, 2000, there have been 355 calendar days or more than 1.1M person hours without a lost workday injury.

Fiscal-year-to-date milestone performance (EA, DOE-HQ, and RL) shows that one of nine milestones (9 percent) was completed on or ahead of schedule, none were completed late, and none are overdue. Although seven additional milestones are scheduled for completion later this fiscal year, no milestones were scheduled for completion during this report period. Further details can be found in the milestone exception report following the cost and schedule variance analysis.

ACCOMPLISHMENTS

Maintain Safe and Compliant PFP

- The PFP is initiating a Hanford Site Pilot Program to provide the best possible outcome for victims who suffer Sudden Cardiac Arrest (SCA) at the facility. Six (6) automatic external defibrillators are being procured and are expected to be installed by the end of November.

Maintain Safe & Secure SNM

- Successfully completed the International Atomic Energy Agency (IAEA) annual Physical Inventory Verification. No findings or observations resulted from this inventory.

Oxides/Metals/Polycubes Stabilization

- Processing of plutonium metals was initiated on September 29, 2000 six weeks ahead of the November 10, 2000 scheduled start date. Early startup of this milestone effort supports a Spring, 2001 Defense Nuclear Facilities Safety Board (DNFSB) commitment to complete packaging of the metal inventory. At this time nearly 12% of the inventory has been stabilized and packaged in bagless transfer containers from the newly installed and operational Bagless Transfer System (BTS).
- An ALARA analysis of polycube stabilization was initiated to include a cost/benefit analysis of projected dose reduction recommendations. The ALARA analysis draft is due the end of November, and the cost/benefit analysis is due the end of December.

Solution Stabilization

- Unrestricted Operations of the Magnesium Hydroxide Precipitation Process (MHPP) was approved by the Plant Director on October 16, 2000.

Residue Stabilization

- Requalified the Segmented Gamma Scan Assay System (SGSAS) to Nondestructive Assay (NDA) items containing up to 142 grams, an increase from the previous limit of 88 grams Pu. This improvement reduces the need to split items and also allows blending of items; thus reducing total number of items to seal out and perform NDA.

Project W-460

- Completed Bagless Transfer System (BTS) startup plan actions and received PFP Director approval for unrestricted BTS operations.
- Westinghouse Savannah River Company (WSRC) indicates fabrication of the 2736-ZB BTS and Outer Can Welder (OCW) remains on schedule for shipment on January 8, 2001 and February 14, 2001, respectively. This second system will double the thermal stabilization capability and eliminate “building to building” material transfers.

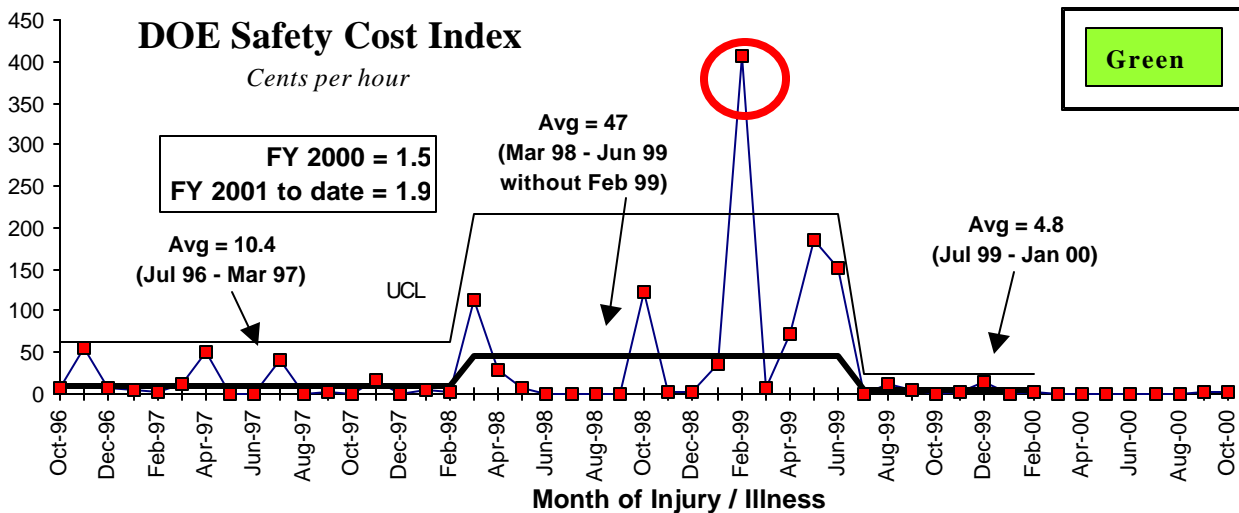
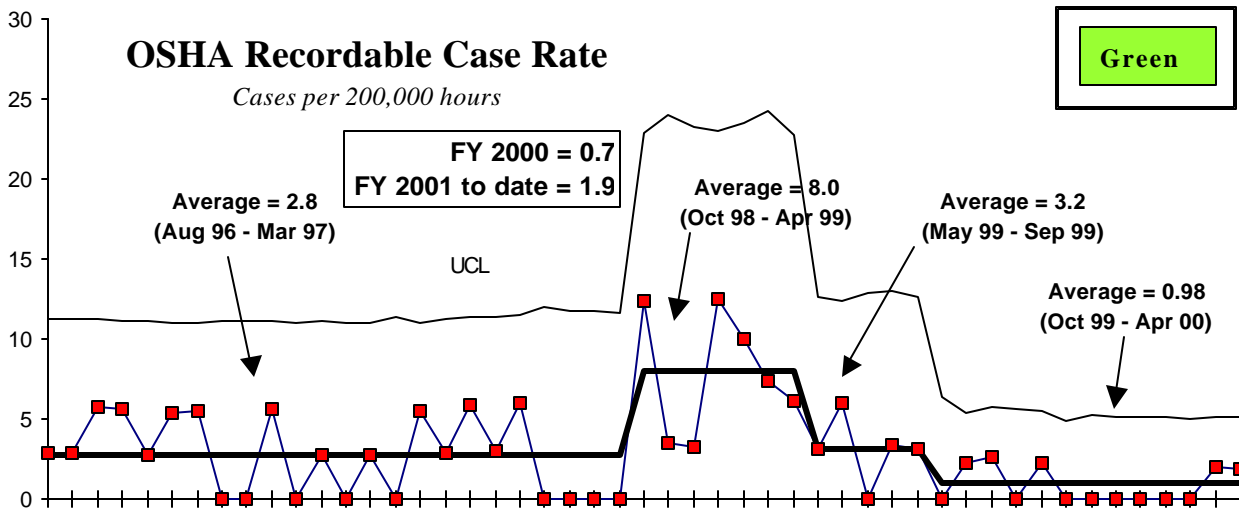
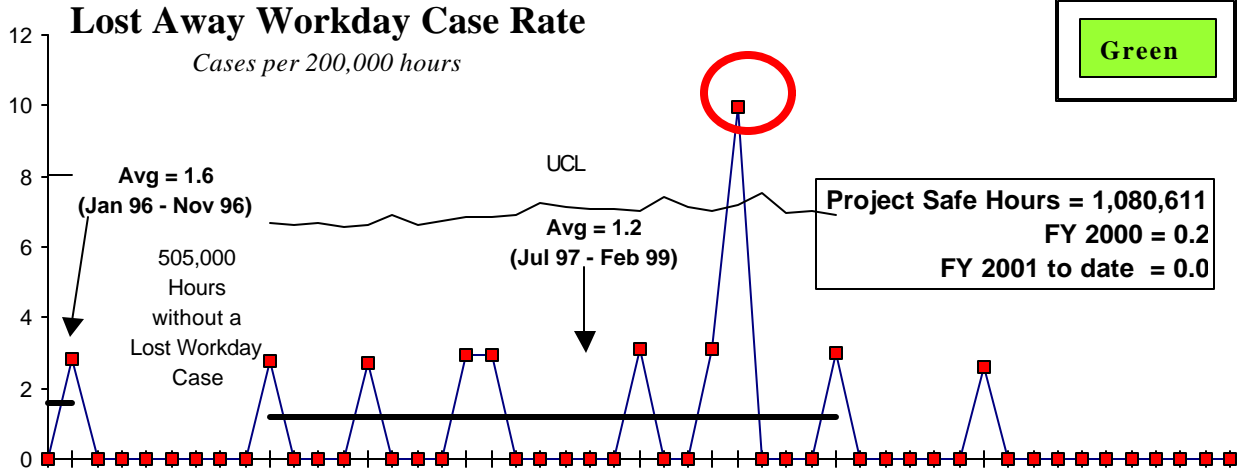
SAFETY

Excellent safety performance is continuing. One million safe hours were achieved in October.

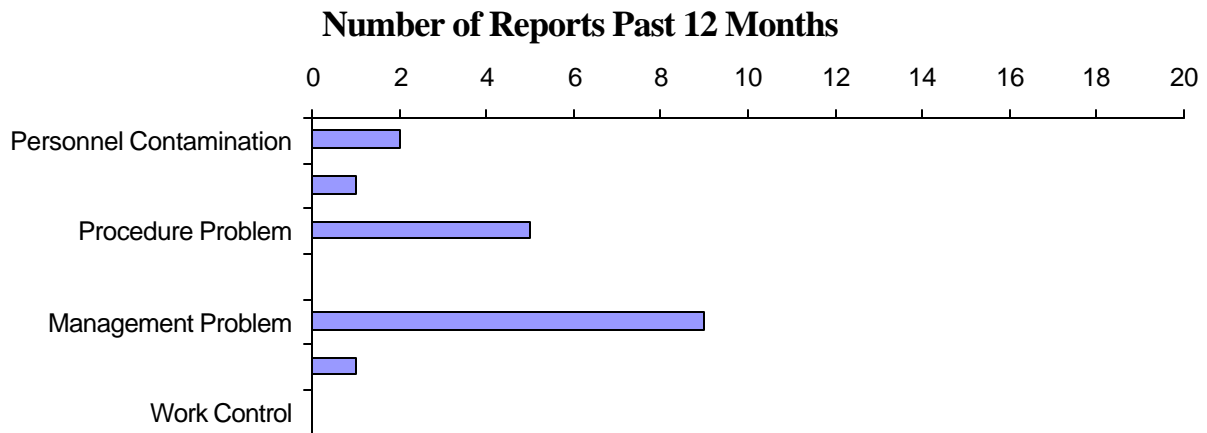
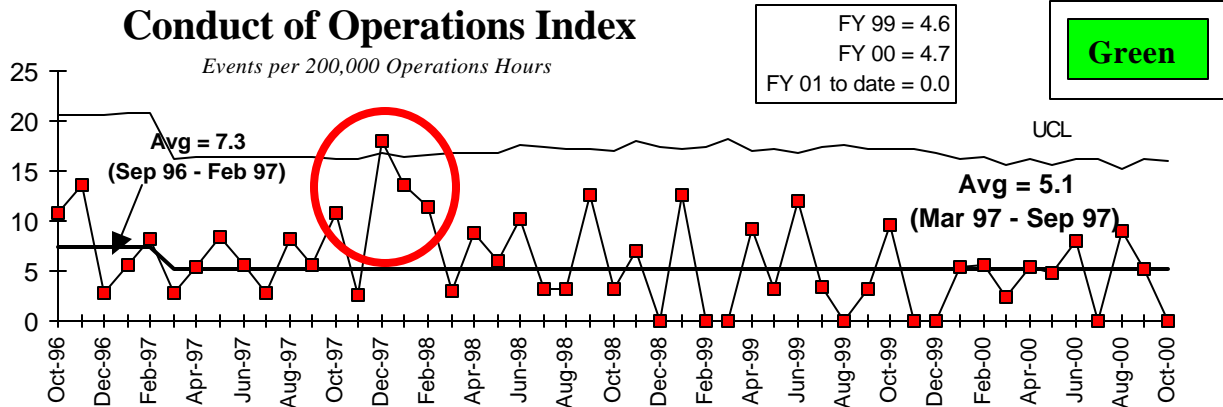
Lost Away Workday Case Rate has had a significant decrease, with thirteen of fourteen months at zero. The current rate is exceptionally low. Occupational Safety and Health Act (OSHA) recordable case rate is stable and there have been more than 631,000 hours since the last OSHA recordable case. This is a significant improvement in comparison to the adverse trend of spring, 1999.

FY 2000 OSHA case rate and DOE Safety Cost Index were very favorable. DOE Safety Cost Index has been below average for eight months in a row. The Index has a new average and new control limits reflecting the significant decrease noted earlier in the year.

PHMC Environmental Management Performance Report – December 2000
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CONDUCT OF OPERATIONS / ISMS STATUS



ISMS STATUS

Continued safety improvements at PFP through ISMS:

- ISMS implementation results continue
 - Automated Job Hazards Assessment tool refinement and increased worker involvement
 - Improvement in pre-job safety briefings and field walk-downs of job sites
- PFP preparing for participation in ISMS National Conference, December 5, 2000.

Green

BREAKTHROUGHS / OPPORTUNITIES FOR IMPROVEMENT

Breakthroughs

- Nothing to report at this time.

Opportunities for Improvement

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- **Exposure Reduction** - Funding has been approved and procurement is underway to purchase a remote controlled video camera that will reduce employee exposure in the 2736-ZB vaults by performing remote video inspections and inventories.
- **Process Efficiency** - Work is underway to identify alloys that can be stabilized early using potentially available muffle furnace capacity. Having backup material options will ensure maximum use of available furnace capacity.
- **Process Improvement** - A containment tent has been fabricated and installed to support residue sealout operations from glovebox HC-46F in room 170 of 234-5Z. This allows immediate sealout and provides the opportunity for concurrent operations with an expected significant increase in throughput.
- **Loss On Ignition (LOI) Equipment Upgrade** - Calibration and testing of the Supercritical Fluids Extraction (SFE) equipment for moisture measurement in stabilized oxides was completed. Operation of this new equipment indicated that eight previously stabilized items that had exceeded LOI limits were actually well within acceptable limits for storage.

UPCOMING ACTIVITIES

- Delivery of the 2736-ZB BTS and OCW is expected during the second quarter of FY 2001.
- Complete repackaging of Pu metal inventory by March 31, 2001. (Milestone TRP-02-500).
- Complete modifications to one vault cubicle by April 2, 2001. (Milestone TRP-99-412).
- Complete repackaging and shipping of Rocky Flats Ash to the Central Waste Complex (CWC) by April 30, 2001. (Milestone TRP-01-515).
- Stabilization and packaging of polycubes consistent with DOE Standard DOE-STD-3013-99 is scheduled to begin in the third quarter of FY 2001.
- Complete alloy stabilization by June 30, 2001 (Milestone TRP-01-501).

COST PERFORMANCE (\$M):

| | BCWP | ACWP | VARIANCE |
|--|-------|-------|----------|
| Nuclear Materials Stabilization | \$5.4 | \$3.9 | \$1.4M* |

* Rounding

The favorable cost variance is primarily due to contract accrual reversals, anticipated labor underruns, and a continuance of spending controls initiated in FY 2000.

SCHEDULE PERFORMANCE (\$M):

| | BCWP | BCWS | VARIANCE |
|--|-------|-------|-----------|
| Nuclear Materials Stabilization | \$5.4 | \$6.6 | - \$1.3M* |

* Rounding

The current unfavorable schedule variance is due to the behind schedule status of ash and solutions processing. However, a number of process improvements are completed, or underway, that are expected to increase throughput of residues packaging and solutions stabilization processing. [Continued](#) delays in obtaining Critical Decision (CD) # 3 approval for Project W-460 is also a contributing factor.

FY 2001 COST/SCHEDULE PERFORMANCE – ALL FUND TYPES

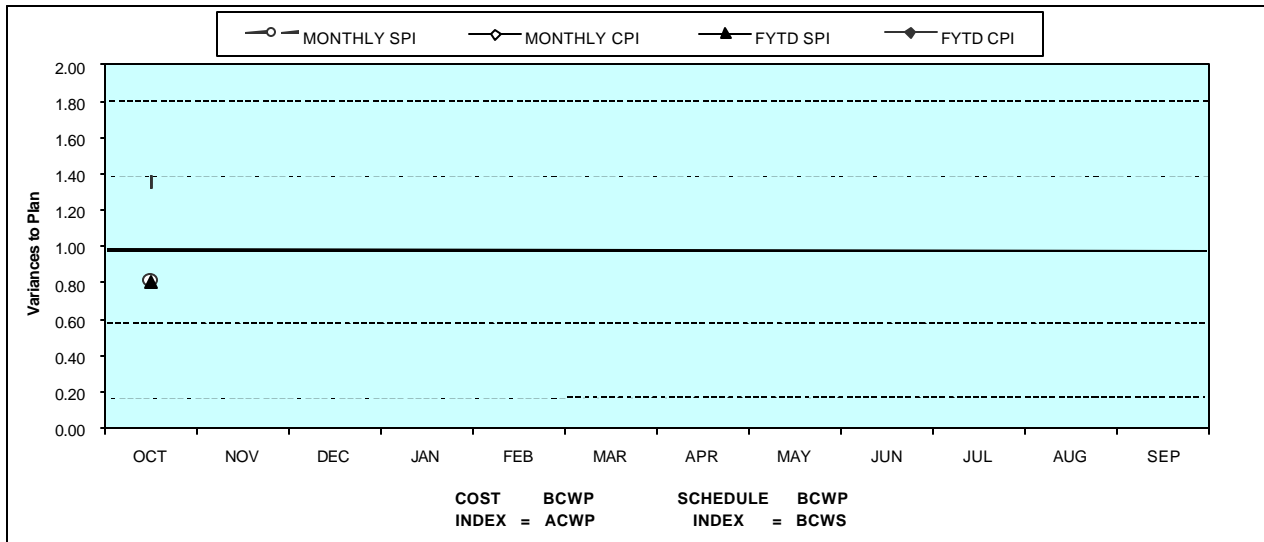
CUMULATIVE TO DATE STATUS – (\$000)

Yellow

| | | FYTD | | | | | | | |
|-----------|--------------|----------|----------|----------|------------|------|----------|-----|------------|
| By PBS | | BCWS | BCWP | ACWP | SV | % | CV | % | PEM* |
| WBS 1.4.5 | PFP | \$ 6,629 | \$ 5,355 | \$ 3,945 | \$ (1,273) | -19% | \$ 1,410 | 26% | \$ 106,494 |
| PBS TP05 | Deactivation | | | | | | | | |
| | Total | \$ 6,629 | \$ 5,355 | \$ 3,945 | \$ (1,273) | -19% | \$ 1,410 | 26% | \$ 106,494 |

*Authorized baseline per the Integrated Planning Accountability, and Budget System (IPABS) – Project Execution Module (PEM). RL-Directed Costs (steam) are included in the PEM BCWS.

COST/SCHEDULE PERFORMANCE INDICES (MONTHLY AND FYTD)



| FY 2001 | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|--------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| MONTHLY SPI | 0.81 | | | | | | | | | | | |
| MONTHLY CPI | 1.36 | | | | | | | | | | | |
| FYTD SPI | 0.81 | | | | | | | | | | | |
| FYTD CPI | 1.36 | | | | | | | | | | | |
| MONTHLY BCWS | \$6,629 | \$10,568 | \$9,058 | \$9,257 | \$7,592 | \$8,483 | \$8,448 | \$10,292 | \$7,376 | \$7,182 | \$9,734 | \$11,876 |
| MONTHLY BCWP | \$5,355 | | | | | | | | | | | |
| MONTHLY ACWP | \$3,945 | | | | | | | | | | | |
| FYTD BCWS | \$6,629 | \$17,197 | \$26,254 | \$35,512 | \$43,104 | \$51,587 | \$60,035 | \$70,327 | \$77,702 | \$84,884 | \$94,618 | \$106,494 |
| FYTD BCWP | \$5,355 | | | | | | | | | | | |
| FYTD ACWP | \$3,945 | | | | | | | | | | | |

COST VARIANCE ANALYSIS: (\$1.4M)

WBS/PBS

Title

1.4.5.1.10/TP05

Maintain Safe & Secure SNM (\$165K)

Description and Cause: The favorable cost variance is attributable to a shortage of staff, contract accrual reversals, and judicious use of overtime in completing the annual IAEA physical inventory verification and the reconciliation of the Material Balance Area (MBA) 213 inventory.

Impact: None forecast.

Corrective Action: No corrective action necessary.

1.4.5.1.11/TP05 Maintain Safe & Compliant PFP (\$705K)

Description and Cause: The favorable cost variance is due primarily to contract accrual reversals from FY 2000 and late invoicing of October 2000 contracts that have not been costed.

Impact: None forecast.

Corrective Action: Contract and material purchases will be monitored as appropriate and, if necessary, apply accruals to account for delayed billing.

1.4.5.1.12/TP05 PFP Fee Allocation (-\$571K)

Description and Cause: A double fee accrual occurred during October.

Impact: None forecast.

Corrective Action: A cost correction is being processed that will remove the double entry.

1.4.5.1.13/TP05 Stabilization of Nuclear Material (\$624K)

Description and Cause: The favorable cost variance is attributable to contract accrual reversals and lower than anticipated project management costs.

Impact: None forecast.

Corrective Action: No corrective action necessary.

1.4.5.1.14/TP-05 Disposition of Nuclear Material (\$312K)

Description and Cause: The favorable cost variance is due to accrual reversals for FY 2000 workscope that have not been re-accrued or paid.

Impact: None forecast.

Corrective Action: Will self correct. No corrective action necessary.

SCHEDULE VARIANCE ANALYSIS: (-\$1.3M)

WBS/PBS

Title

1.4.5.1.13/TP05 Stabilization of Nuclear Material (-\$533K)

Description and Cause: The unfavorable schedule variance is due to the recalibration of the Segmented Gamma Assay System (now completed) that impacted ash processing, hardware, procedural, and programmatic evaluations in support a of solutions and residue processing, as well as solutions and residue labor underruns.

Impact: A potential delay is anticipated in completion of the solutions stabilization program.

Corrective Action: Solutions and Residue process improvement evaluations noted above are underway that will potentially improve solutions and residue throughput.

1.4.5.1.14/TP05 Disposition of Nuclear Material (-\$669K)

Description and Cause: The unfavorable schedule variance is primarily due to Project W-460 equipment and material procurements in support of the 2736-ZB BTS construction that have not yet been delivered and costed. Shipments of packaged Rocky Flats Ash to the Central Waste Complex are also behind schedule.

Impact: None forecast.

Corrective Action: No corrective action necessary.

ISSUES

Technical Issues

The quantity of boats from the precipitation process is higher than expected or forecasted in the baseline estimates and schedules. Review of the data from the characterization-processing task indicates the need to improve current throughput estimates for processing the remaining solutions inventory. A processing strategy for improving the current throughput estimates is currently being developed.

Filtrate from the precipitation process is requiring recycling to meet the discharge limit for the drum loading station. Techniques for improving the processing are being worked jointly with members of the PPSL and PNNL staffs.

The rate of throughput for polycube processing has been determined to be less than planned during the latest IPMP update. Currently working on revision of processing method to reduce the offgas rate and allowing an increase in throughput.

Portions of the oxides to be processed contain fairly high levels of chloride. Technology is available to 'wash' the oxides prior to processing. Purchasing the necessary equipment will be revisited at a later date.

DOE/Regulator/External Issues

Nothing to report at this time.

BASELINE CHANGE REQUESTS CURRENTLY IN PROCESS (\$000)

| PROJECT CHANGE NUMBER | DATE ORIGIN. | BASELINE CHANGE REQUEST TITLE | COST IMPACT \$000 | S C H | T E C H | DATE TO CCB | CCB APR'VD | RL APR'VD | CURRENT STATUS |
|-----------------------------|-----------------|--|-------------------------|-------------|------------------|--|------------|-----------|-------------------|
| FH-2001-001 | 12-Sep-00 | Base Operations Reduction | <\$6,790> | X | X | 25-Oct-00 | 25-Oct-00 | | At RL |
| FH-2001-002 | 12-Sep-00 | FY01 Fee Reduction to 90% | <\$600> | X | X | 25-Oct-00 | 25-Oct-00 | | At RL |
| FH-2000-003 | 12-Sep-00 | Addition of High Priority Workscope | \$9,707 | X | X | 25-Oct-00 | 25-Oct-00 | | At RL |
| FSP-2001-003 | 12-Sep-00 | Video Control Camera | \$66 | X | X | Approved by George Jackson on 11/11/2000 | | | Complete |
| FSP-2000-079 | 12-Sep-00 | FY 2001 MYWP & Baseline Revisions | \$0 | X | X | 29-Aug-00 | 31-Aug-00 | | At RL |
| FSP-2001-009 | 12-Sep-00 | Remote Material Surveillance | \$548 | X | X | 30-Nov-00 | 6-Dec-00 | | In Process |
| FSP-2001-013 | 28-Nov-00 | Tank 241-Z-361 Continued Operations | \$150 | X | X | | | | |
| FSP-2001-014 | 29-Nov-00 | Extend Solutions Campaign | (\$407) | X | X | | | | |
| ADVANCED WORK AUTHORIZATION | | | | | | | | | |
| AWA-01-001 | | Tank 241-Z-361 Incremental Work | \$50 | X | X | 10-Oct-00 | 10-Oct-00 | 18-Oct-00 | Complete |
| AWA-01-002 | | PFP Parking Lot Upgrade | \$150 | X | X | | | | |
| AWA-01-003 | | Mg(Oh)2 Filtrate Disposal | \$75 | X | X | 13-Nov-00 | 13-Nov-00 | N/A | Complete |
| AWA-01-004 | | Mg(Oh)2 FSAR Addendum | \$70 | X | X | 13-Nov-00 | 13-Nov-00 | N/A | Complete |

MILESTONE ACHIEVEMENT

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| MILESTONE TYPE | FISCAL YEAR-TO-DATE | | | | REMAINING SCHEDULED | | | TOTAL FY 2001 |
|-----------------------|---------------------|-----------------------------|-------------------|----------|---------------------|----------------------------|------------------|------------------|
| | Completed Early | Completed On Schedule | Completed Late | Overdue | Forecast Early | Forecast On Schedule | Forecast Late | |
| Enforceable Agreement | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 |
| DOE-HQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RL | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 5 |
| Total Project | 1 | 0 | 0 | 0 | 0 | 7 | 1 | 9 |

Only TPA/EA milestones and all FY2001 overdue and forecast late milestones are addressed in this report. Milestones overdue are deleted from the Milestone Exception Report once they are completed. The following chart summarizes the FY2001 TPA/EA milestone achievement and a Milestone Exception Report follows. The last milestone table summarizes the first six months of FY 2002 TPA/EA milestones.

FY 2001 Tri-Party Agreement / EA Milestones

| Number | Milestone Title | Status |
|----------------------------------|--|--|
| M-083-07 (TRP-01-515) | “Complete Repackaging & Shipping of Rocky Flats Ash to the CWC” | Due April 30, 2001 - On schedule. |
| M-083-07 (TRP-01-516) | “Complete Requirements to Ship Rocky Flats Ash to WIPP” | Due June 1, 2001 - On schedule |

DNFSB Commitments

| | | |
|--|---|---|
| M-IP-114 (TRP-01-501) R94-01) | “Ship Alloys to SRS or Complete Stabilization of Alloys” | Due June 01, 2001 - On schedule. |
| M-IP-110 (TRP-02-500) | “Complete Packaging of Metal Inventory” | Due March 31, 2001 – This milestone will be late. The Outer Can Welder, which is required to complete this milestone, will not be operational in time to meet this milestone commitment. A letter formally notifying DOE-HQ that this DNFSB Recommendation 2000-1 milestone will be late is being prepared. However, this milestone will be completed in FY 2001. <div style="float: right; border: 1px solid black; background-color: yellow; padding: 2px; text-align: center;">Yellow</div> |

MILESTONE EXCEPTION REPORT

| <u>Number/WBS</u> | <u>Level</u> | <u>Milestone Title</u> | <u>Baseline Date</u> | <u>Forecast Date</u> |
|-------------------|--------------|------------------------|----------------------|----------------------|
|-------------------|--------------|------------------------|----------------------|----------------------|

OVERDUE – 0

FY 2002 Tri-Party Agreement / EA Milestones

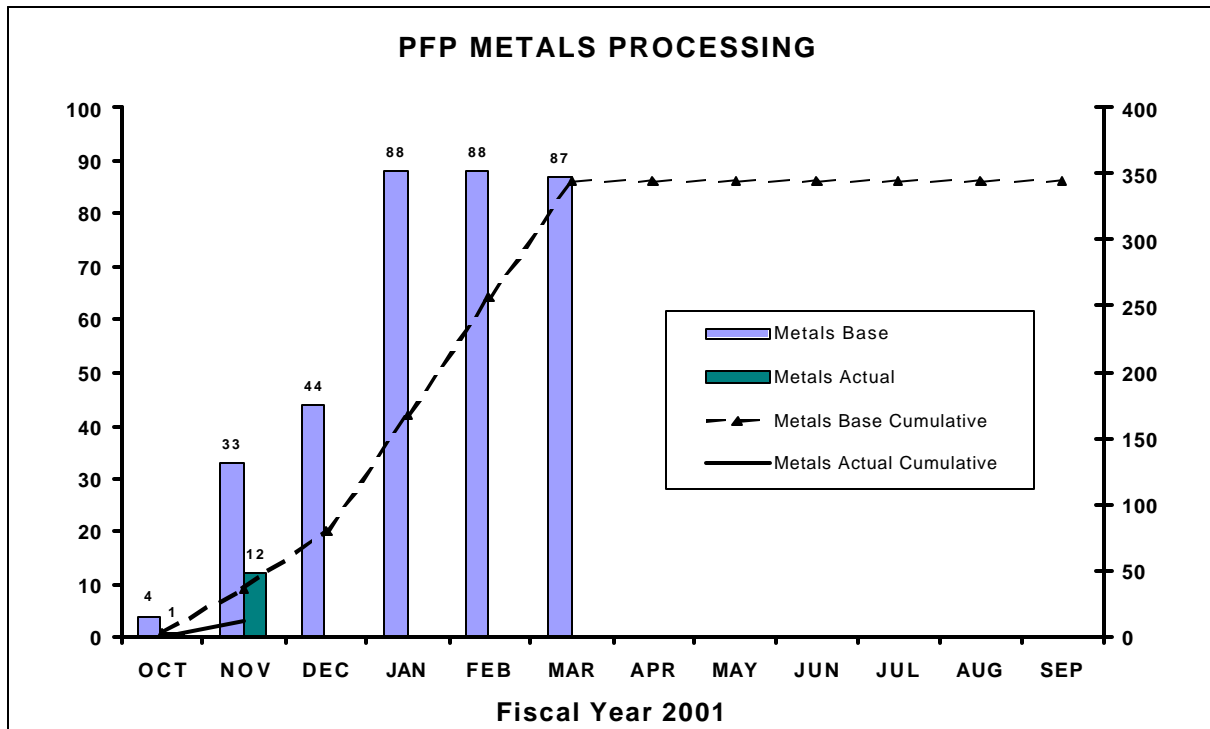
| Number | Milestone Title | Status |
|--------|---------------------------------|--------|
| | Nothing to report at this time. | |

DNFSB Commitments

| | | |
|-------------------------------|---|---|
| R94-01 (TRP-01-500) | “Complete Stabilization & Packaging Plutonium Solutions” | Due December 31, 2001 - On schedule. |
|-------------------------------|---|---|

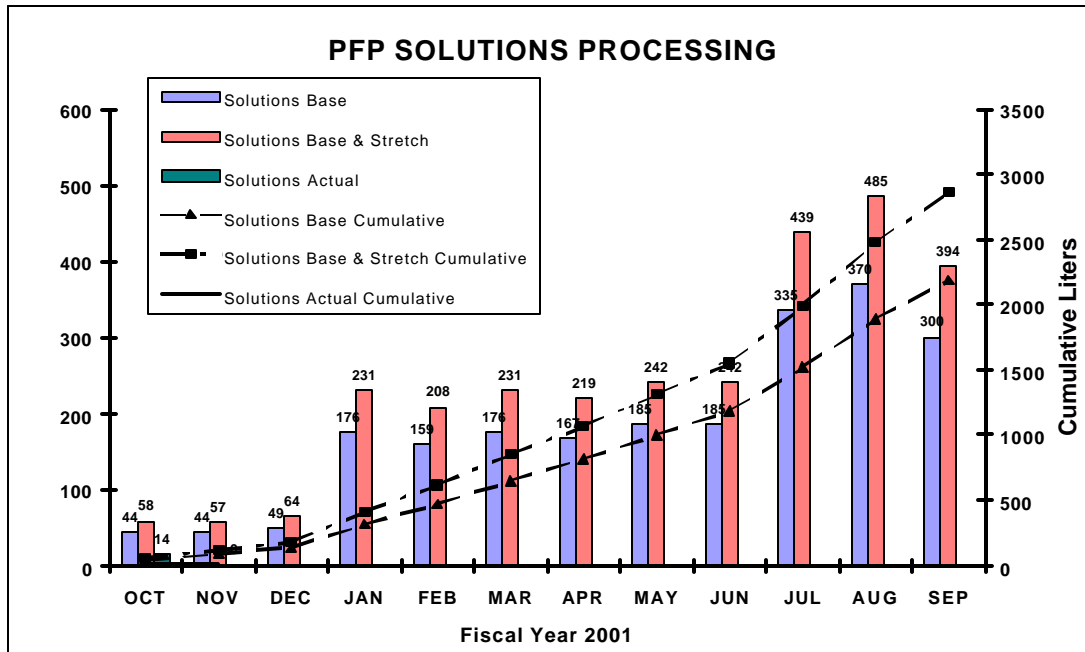
PERFORMANCE OBJECTIVES Oxides/Metals/Polycubes Stabilization

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Solution Stabilization

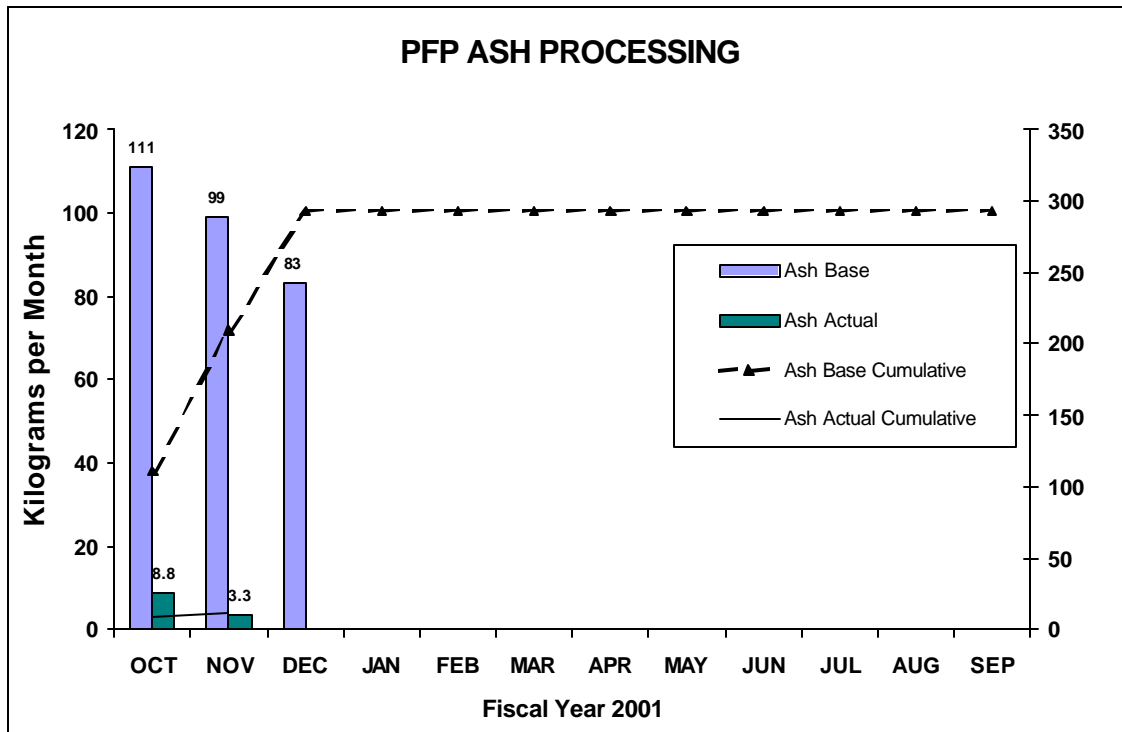
Yellow



The quantity of the boats from the precipitation process is significantly higher than forecasted in the baseline estimates and schedules.

Yellow

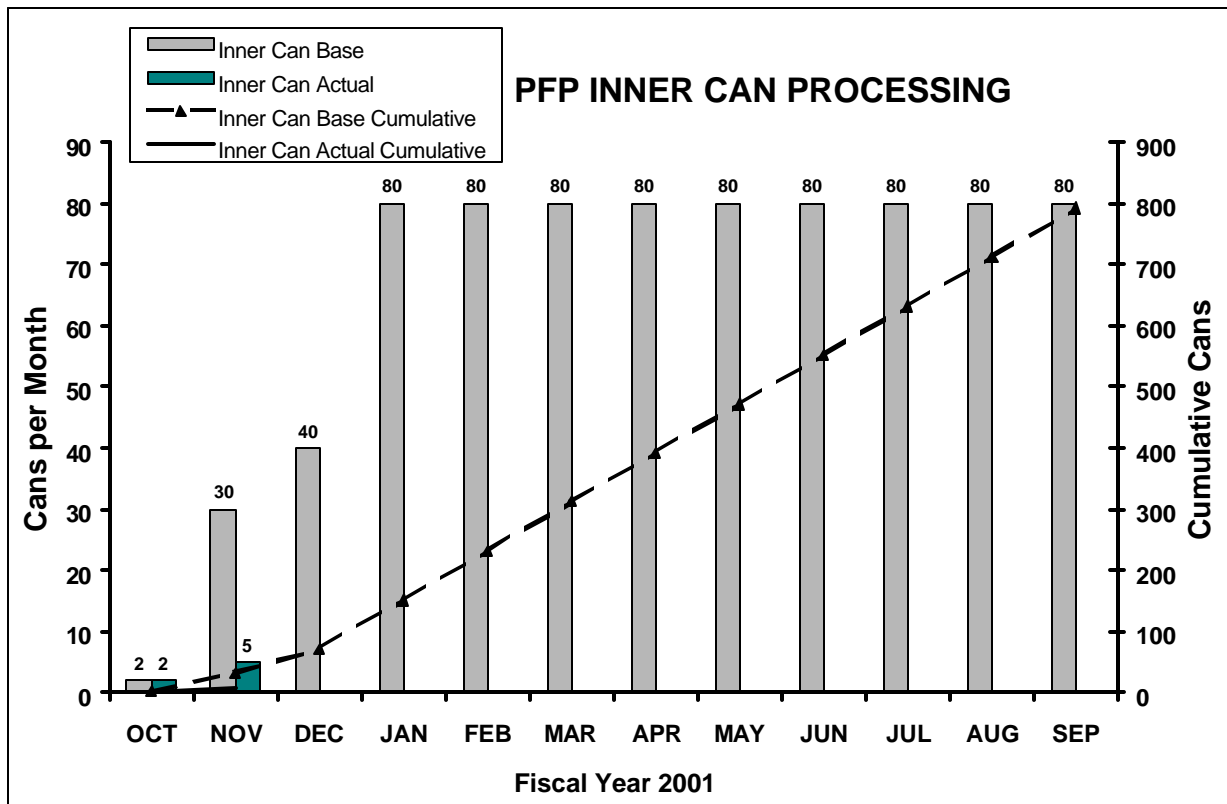
Residues Stabilization



Significantly behind schedule for anticipated target date, however the April Tri-Party Agreement Milestone (M-083-07) will be met.

Packaging of Stabilized Material

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KEY INTEGRATION ACTIVITIES

- Support to the Central Waste Complex continued in completing activities necessary to allow acceptance of packaged residues. This support included security upgrades and issuance of Criticality Safety Evaluation (CSER) and SARP documentation.
- A recent FH visit to Westinghouse Savannah River Company (WSRC) indicates the 2736-ZB Bagless Transfer System and the Outer Can Welder remain on schedule for shipment on January 8, 2001 and February 14, 2001, respectively. This second system will double the thermal stabilization capability and eliminate “building to Building” material transfers.
- RL approval for Project W-460 Critical Decision #3 is necessary to preclude further impact to procurements in support of 2736-ZB stabilization and packaging equipment.